

# OSTEOLOGICAL AND PTERYLOGRAPHICAL CHARACTERS OF THE PROCNIIDÆ.

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THE striking characters of the skull of *Procnias* are the total absence of the transpalatine processes, the small size of the interpalatines, and the slenderness and outward curvature of the prepalatine bars, which makes the interpalatine vacuity almost oval in shape. I do not recall any other passerine in which the transpalatine process is totally absent, a condition which exists in such distant relatives of the Passeres as *Thinocorus* and *Turnix*. In the skull of a "half-ripe" embryo of a

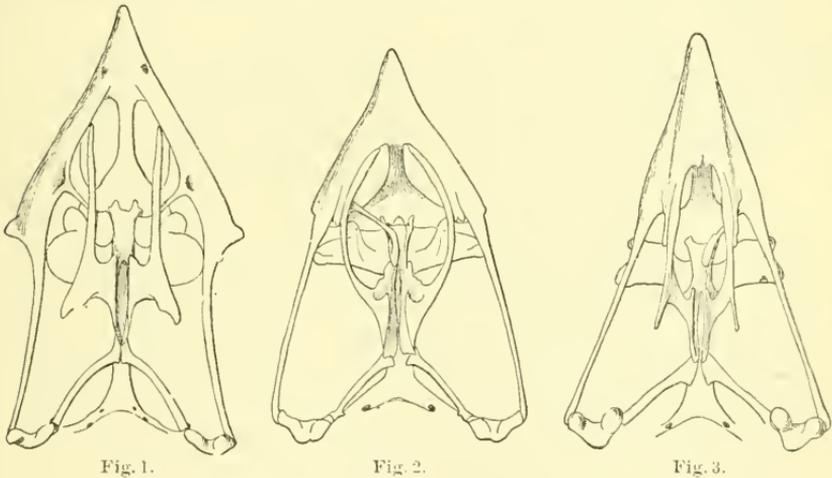


Fig. 1. PALATAL REGIONS.  
(1) *Petrochelidon lunifrons*, (2) *Procnias tersa*; (3) *Piranga erythromelas*.  
Slightly enlarged.

swallow,<sup>1</sup> the transpalatine processes are seen to ossify from separate centers, so that the condition found in *Procnias* may be considered as due to lack of development.

The maxillopalatines are long, slender, scarcely expanded at their free ends, and slightly pneumatic. There is a stout palatomaxillary

<sup>1</sup> Parker, "Skull of Egithognathous Birds," Part II, pl. LII, fig. 4.

process, whether or not developed from a separate center is not known. The vomer is characteristically passerine, with the edges of the anterior extremity much upturned, instead of flattened, as in swallows and tanagers.<sup>1</sup> In the approximation of the pterygoids to the basitemporal region, there is a suggestion of such forms as *Micropus*, this being noticeable in many so-called picarian birds.

The jaw possesses no salient characters, but in spite of its broad, swallow-like shape, its general characteristics are suggestive of tanagrine rather than of hirundine affinities, and the same is true of the shape of the nasal openings, although from the width of the cranium it might be thought that the reverse would be the case. The ventral portion of the ectoethmoid is narrow, as in tanagers, instead of being expanded, as in swallows, and the postpalatines are produced over the pterygoids, which again does not happen in swallows.

The hyoid bones are short, the tongue itself hirundine in pattern, with its posterior portion covered with short, backwardly directed papillæ. The same style of tongue occurs among the swifts, and will probably be found in other insectivorous birds, in which the tongue is capable of but little protrusion. The manus is strictly passerine, as is also the hypotarsus, which has five tendinal perforations, whereof the

postero-outermost is closed by cartilage, as in some swallows, although this is a comparatively unimportant particular.

The skull of *Chlorophonia*, although not typically tanagrine, bears no close resemblance to that of *Procnias*, although the two are usually placed near one another.

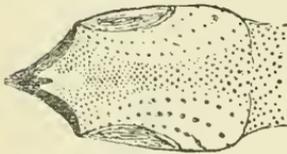


Fig. 4.

HEAD OF PROCNIAS TERSA.

Natural size.

*Résumé.*—The skull, in spite of its superficial resemblance to that of a swallow, is structurally more nearly like that of such a typical tanager as *Piranga erythromelas*; but in the characters of the palate, *Procnias* departs so widely, not only from the tanagers, but from the large majority of passerine birds, as to warrant the establishment of a separate family for the members of the genus.

I am indebted to Mr. Hubert L. Clark, who compared the pterylosis of *Procnias* with that of a number of tanagers, for the appended notes. Unfortunately the only specimen of *Procnias* available was a dried skin, and this at first sight appeared to show a dorsal apterium, although close examination showed that, in all probability, this was due to loss of feathers in making up the skin.

“The ninth primary is the longest and the others follow in regular succession, eighth, seventh, sixth, etc., but the eighth is practically equal to the ninth. While this arrangement is by no means rare among the Passeres, it is not the rule, as the ninth is usually shorter than the

<sup>1</sup> Comparison is made with the swallows, because superficially the skull of *Procnias* strongly suggests that of a swallow.

eighth or seventh. In the specimens of *Rhamphocelus passerini*, *Tanagra darwini*, and *Tanagra palmarum*, which were examined with *Procnias* for comparison, the arrangement was quite different, *Rhamphocelus* having the ninth about equal to the first and second, and much shorter than the sixth, which was the longest; the two *Tanagras* had the sixth, seventh and eighth about equal, the ninth shorter and about equal to the fifth.

"In the arrangement of the feathers of the head, *Procnias* differs from most Passeres by having several of the rows on the posterior part of the crown on each side widely separated, thus forming a peculiarly marked longitudinal pattern. This arrangement is, however, probably due to the increased width of the head, which is much the shape of a swallow's; the same arrangement, due to probably the same cause, is carried to the extreme in the *Caprimulgi*.

"The form of the dorsal tract is very different from that of *Rhamphocelus* or *Tanagra*, all of which are figured to show the variations. It is a little like *T. palmarum*, or *Certhiola* as figured by Lucas,<sup>1</sup> but the diamond-shaped dorsal tract is longer and nearer the middle of the back. The ventral and femoral tracts were destroyed in making the skin, and no proper conception could be formed of the cervical or sternal tracts, as they were twisted and crowded all out of shape.

"There is nothing in the pterylosis of *Chlorophonia* to indicate any relationship to *Procnias*, but on the other hand there is a decided resemblance to *Tanagra palmarum*. In fact, the only difference from that species worth noting is the smaller size of the dorsal tract, the shape being apparently the same.

"The pterylosis of *Procnias* is evidently passerine, but shows no particular leaning toward any group, and seems to differ slightly from the tanagers, with which it has hitherto been classed. As far as pterylosis alone is concerned, it may be placed anywhere among the Passeres, but not too far from the warblers, finches, or swallows."

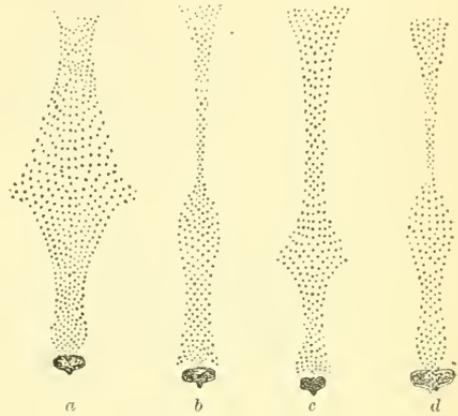


Fig. 5.

## DORSAL TRACTS.

(a) *Procnias tersa*; (b) *Tanagra darwini*; (c) *Tanagra palmarum*; (d) *Rhamphocelus passerini*.

Two-thirds natural size.

<sup>1</sup>Proc. U. S. Nat. Mus., XVII, 1894, p. 303.